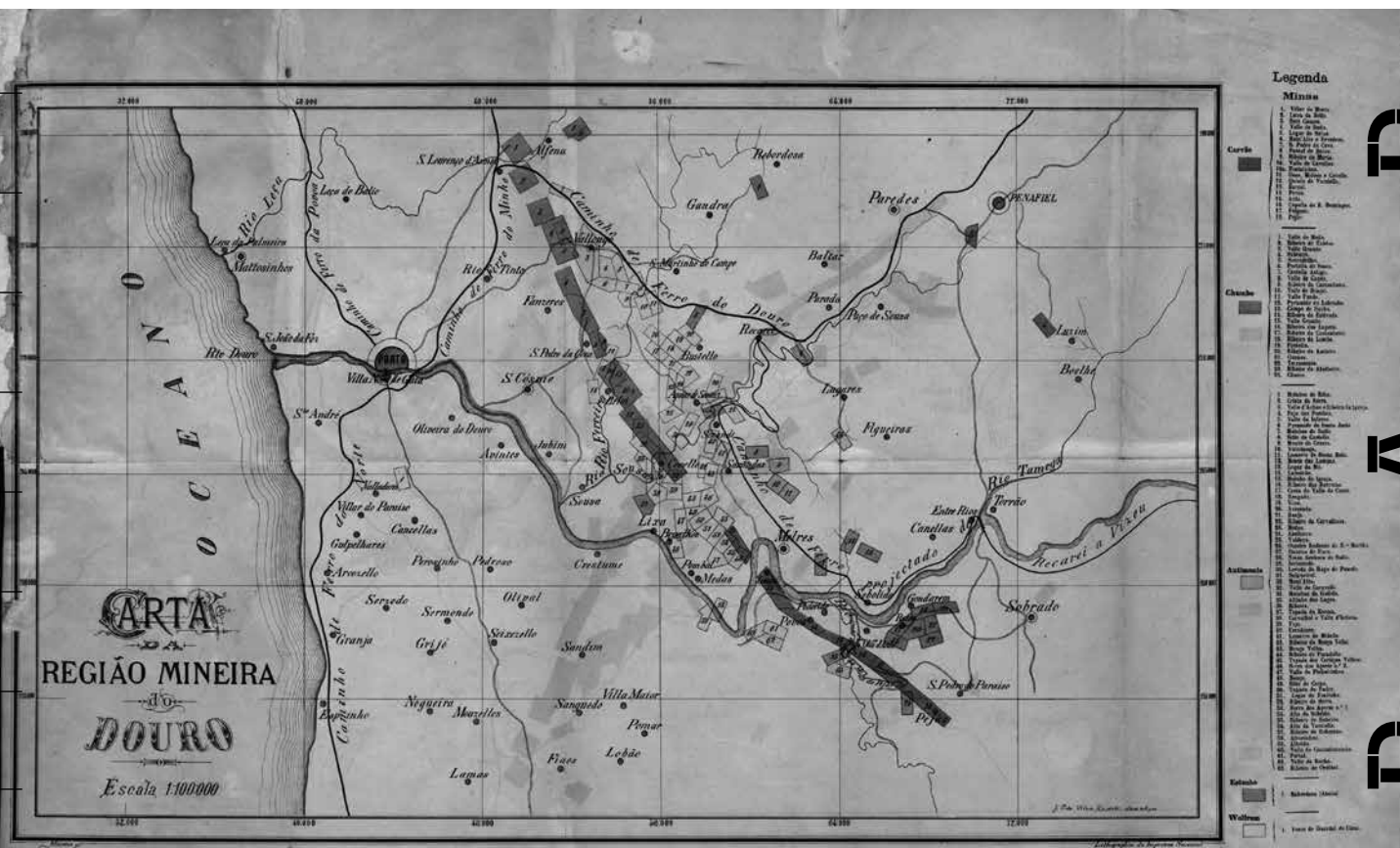


# Daniela Alves Ribeiro

## Territories of energy production and landscape heritage.

### The Coal Basin of Douro



Two decades after the introduction of fuel oil in the thermoelectric power station of *Tapada do Outeiro*, the last national fossil fuel exploitation was closed. The “assisted dying” of *Pejão* mine in 1994, led to the suspension of the landscape transformation process in the coal basin of Douro. Today, the area is disarticulated from the production line of territory that had once determined its construction.

Until the introduction of mineral coal as fuel, the supply determined the location of industrial facilities. However, coal led to profound changes on the entire production and distribution systems of mechanical energy: for the first time ever, it provided the industry living from stored energy. While proximity to fuel resources used to be decisive in the establishment / settlement of production infrastructures, from the moment we had potential energy, the logic behind territorial organization was established through new paradigms of territory planning.

Coal became the main fuel in the paleotechnic stage<sup>1</sup>. The extraction, transportation, storage and processing of this fossil fuel, a cumulative capital, defined a territorial organization system.

The industrialization in Portugal – although tardy – began with a strong reliance on coal. As such, it can only be understood if the whole system inherent to the transformation of coal into energy is considered. The landscape resulting from the energy production over Douro river stretches from the coal extraction points, along the carboniferous strip, and up to household heating and urban lighting, energy transformation centrals and industrial facilities, mainly in Oporto. This is what we understand as Carboniferous System of Douro.

Since the late 19<sup>th</sup> century, the landscape of carboniferous basin of Douro has been built through the deconstruction of the coal seam underground. The production of potential energy determined the transformation of an agricultural landscape into a territorial production line with an industrial character, which must be understood as *Unit of Landscape Heritage*.

The supply system of coal was developed together with the social structures that supported the exploitation, which took form in the legal figure of *Coutos Mineiros*: *S. Pedro da Cova* and *Pejão*<sup>2</sup>. Due to the protectionist measures for national fuels, the area was urbanized through private initiatives, anchored in a mining identity and inculcated by nationalist values. The urbanization process was comprised by architectural developments that responded to the technical advances in the industrial activity, to which an image of progress, collectivity and a sense of belonging to the Company was associated.

As such, these developments provided the context to try new materials and technological models. They stood out as a value of modernity, also because of their relevance in the territorial organization. The social structure is hereby seen as the backbone of urban development. The relationship between industry and site supports the mining heritage and, generally, this is not valued.



**1. The Saline Royale**  
The *Salines Royales d'Arc-et-Senans (Ledoux)* were built in 1775, next to the *Chaux Forest* in order to ensure the profitability of the production system; the proximity to the fuel source, wood, defined the settlement of the production structure.

**2. Coal basin of Douro, 18--**, National Library of Portugal  
By 1851, almost all mines of carboniferous basin of Douro were registered. This charter might be the result of that.

## ENERGY PRODUCTION TERRITORIES TODAY

The whole system lost its significance after the dematerialization of the energy resource: the element that once articulated territorial development became immaterial, and the system lost its physical support structure. As an architectural work conceived to perform a specific function, the facilities for extraction, processing and transportation of coal are a reflection of the problematic presented by A. Rossi (1966), which described the diminishing purpose of functional architecture. During the last decades, programmatic changes have been proposed for this type of architectural works, which are actually difficult to adapt to new uses. The representation of this territorial system as a cultural symbol becomes more relevant than its form and specific characteristics.

In the Douro valley, the problematic is wider, due to the understanding of these structures as integrated components of a system, materialized on the transformation of the landscape. Given the complexity of the structuring logic instilled by territorial management instruments into the *carboniferous basin of Douro*, it is important to understand how the inertia that the energy system produces in the territory can be (re)understood as an operative unit.

## HERITAGE TERRITORIES

Heritage paradigms have been mutating, and the concept of heritage has been re-encoded by different scientific fields. If the monument was understood as a subject of memory and identity, the current condition of heritage would focus on its capacity to represent “values and needs that establish links between the present and the past, thus giving coherence to a changing world” (Choay, 2005, p.9).

The search for this “coherence” raises the confrontation between the material character of what is *patrimonialized* and the immateriality inherent to the representation of “intangible heritage”<sup>3</sup>.

In the *Carboniferous System of Douro* this confrontation is formalized in the concept of cultural landscape, presented by Sauer in 1925, and defined by UNESCO, in 1972, as an expression of memory and identity of a specific place, characterized by a coherent culture.

However, a cultural landscape is worthy of protection when the adequacy between ecological and cultural is effective. In this case, we face the problematic arising from the polluting and highly exploratory nature of the “social and economics imperatives [...] that [here] developed their own way to adapt to the natural environment”<sup>4</sup>.

Based on the characteristics of the land, an exploitation facility was often settled in inhospitable places<sup>5</sup> where the site had to be built, generally organized based on the productive structure, optimizing the extractive processes and, simultaneously, giving an architectonic and urban answer to the demand associated with a fast industrialization process.

As such, autonomous communities were organized, dependent on a special protection, with their own administrative culture, and where all the details of a miner's life were considered: from social networking to sport practice. Essentially, this was a paternalistic system juxtaposed with the *Estado Novo* that constituted a cultural anchor for the communities that were structured here.

This is what is understood as cultural heritage<sup>6</sup>, whose immateriality goes beyond the “practices, representations, expressions [and] cultural places”<sup>7</sup> that support the identity of *coutos mineiros*; but it also stretches to what Pereira (2014, p.84) defined as “atmospheric heritage”: a metaphysical heritage, sensitive and resulting from the allocation of sentimental value, deeper and more difficult to define (Bourdin, 1984, p. 39), associated to what is understood as passing from territory perception to landscape understanding (Roger, 1997, p.9).

In fact, this is an iterative process that Bourdin (1984, p.228) defined as a “pseudo-war” between intimacy – in which the site authenticity is focused on – and the universal understanding of its value, related to recognizing landscape as an historical construction that allows an understanding of its components, not as individual objects, but as elements inherent to a transformation logic. This logic was identified by W.Rossa as the *invariant* in urban heritage: what is considered heritage? The plan / the logic or the built object?<sup>8</sup>

Nevertheless, the process of *patrimonialization* is often activated before the threat of disappearance, reconnecting to the idea of inheritance. Today, heritage refers mainly to common goods that are no longer integrated into daily practices, reflecting a clear trend towards the elasticity of its meaning. Bourdin connected this reinvention to the etymological meaning of heritage<sup>9</sup>, to which a valuation is assigned that, although subjective, represents a guarantee for the future. It is understood as a subterfuge towards the anguish of emptiness that is widespread in our society.

The hysteria associated with the current heritage rhetoric has led to its proliferation, which is directly proportional to its functional obsolescence and to its own dissemination mechanisms. Simultaneously, it corresponds to a progressively individualized speech, of a populist character and reduced scale, about the interpretation of its memory and past<sup>10</sup>.

Although this process is associated with deep identity, it is not the most important factor. The core issue is the collective assimilation of change that is made. Metaphorically, the mourning is transposed to group domain, founding social relationships on the collective memory.

Given the functional death of the whole energy system that once determined the transformation of the carboniferous basin of Douro, we hereby discuss its assimilation, when the (infra)structural logic is replaced.

Sauer (2006, p.10) argued that it is only possible to provide an idea of landscape if based on its relationships in time and space; therefore,



3. Trestle of S. Vicente, S. Pedro da Cova's mines, São Pedro da Cova, Gondomar.

The Trestle of São Vicente (1934) was declared *Monumento de Interesse Público* (monument of public interest) in 2010. The two trestles in the carboniferous basin of Douro — S. Vicente in S. Pedro da Cova and Fojo, in Pejão — are the only built in reinforced concrete in Portugal, and among a few in Europe. However, the inscription process arose from a claim by former miners as a symbol of their work, efforts and struggles in the Mine.

the appropriation logics determined by the different uses become relevant for the understanding of their morphology. As such, it should be understood not only as something to be protected and preserved, but considering its constantly evolving condition (Roger, 1997, p.138).

Between the historic center of Oporto and the Alto Douro wine region (both UNESCO World Heritage Sites), the *Carboniferous System of Douro* constitutes today an important axis in approaching heritage property from a prospective and operating framework.

In this assisted dying process, it is important to understand how the inertia produced by the energy system in the territory can be (re) understood as an operating resource (Bel & González, 2009), a heritage closely linked to the territory, going beyond the prospect of a mere survey.

## CHALLENGE

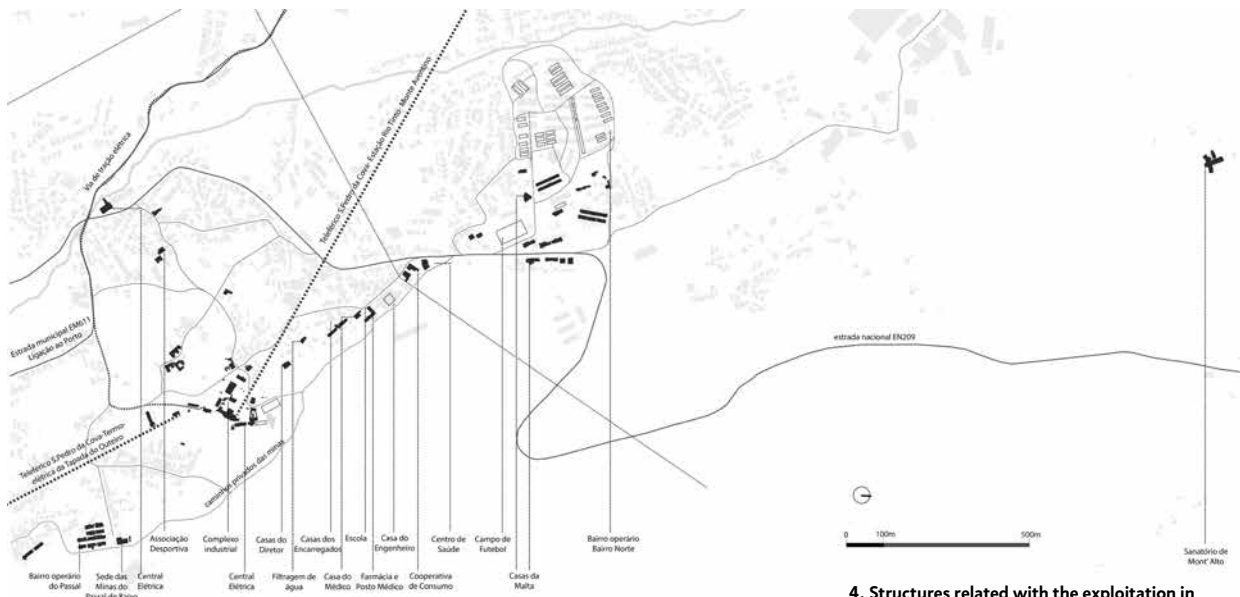
The approach to the *Carboniferous System of Douro* aims for the recognition of heritage property as a benchmark element and as an enhancer of regional planning. The understanding of the logic behind territory production should be reflected on the review of its role / function. The ordinary or even functional background of these structures makes us identify them as smaller values. However, their “intimate” character, which results from a genuine recognition and provides, therefore, a unique assessment, allows us to think of these places of non-monumental character, as enhancers of an integrated redevelopment of landscape, endowed with meaning (Pereira, 2014, p.82).

This understanding of heritage property can be based on an approach structure that, in the case of the *Carboniferous System of Douro*, appears as follows:

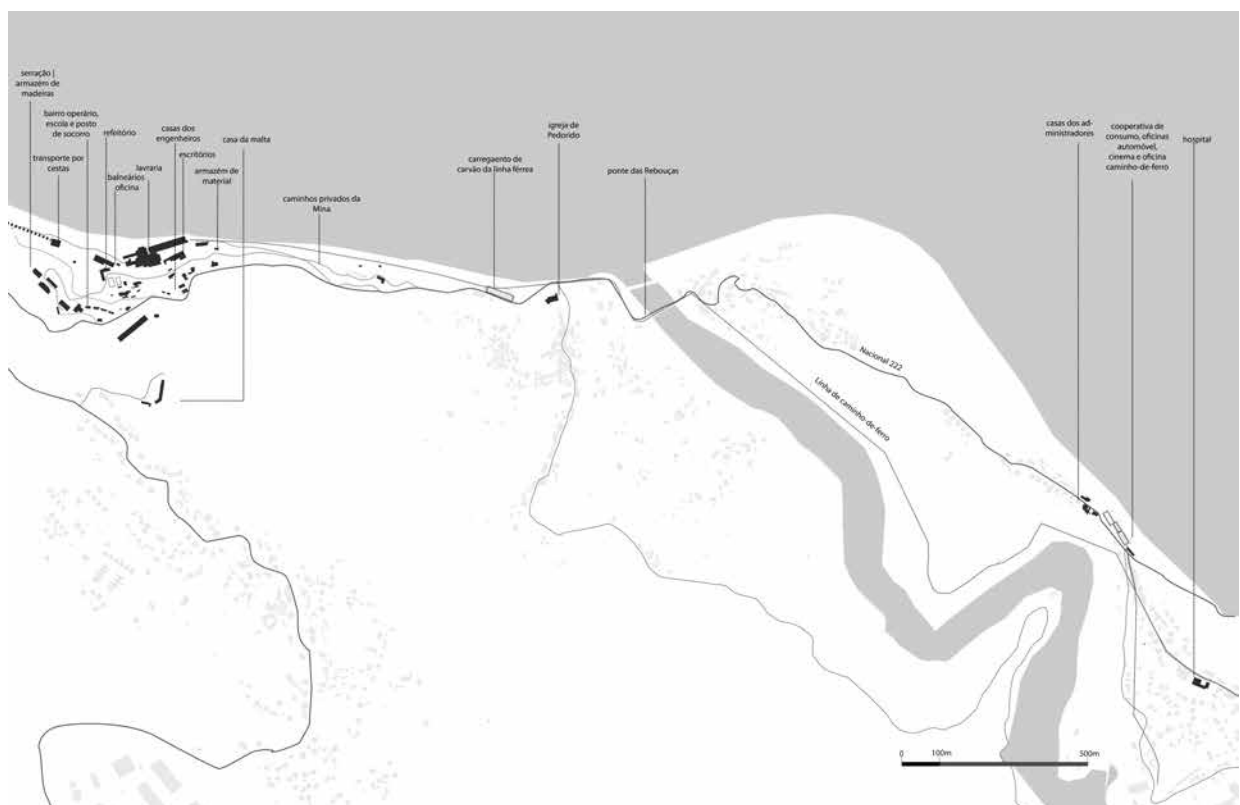
### **1. To make the logic that sustained the energy conversion system and the way the productive space creates social space intelligible:**

The “Coutos Mineiros”, basis of the energy system, were constituted as autonomous centers, dependent on special protection. These settlements developed around the factory, strongly influenced by the utopian architectures that had taken form on the beginning of the European industrialization and would support the idea of city<sup>11</sup> and giving shape to the ideological changes resulting from socio-economic paradigms introduced by industrialization: from technical advances in the means of production to concerns about working routine and even hygiene conditions.

Structured as the ideal cities presented in *Orígenes y Desarrollo de La Ciudad Moderna* (Aymonino, 1972, p.22)<sup>12</sup> these urban structures were based on a system fully focused on their economical and functional autonomy. They were able to ensure a balanced life for a small number of inhabitants, gathering all the resources and livelihoods for production, education, culture and leisure.



#### 4. Structures related with the exploitation in São Pedro da Cova, mines of S. Pedro da Cova, Gondomar



**5. Structures related with the exploitation in Germunde, mines of Pejão, Castelo de Paiva.**

A morphological approach to these structures allows the understanding of the principles that underlie *The origins of Modern Town Planning* (Benévolo, 1972): workers' housing (models, types, location) and its relationship with the production system, distribution of social equipment and support services, and positioning of production units, together with the distribution networks, become particularly relevant in understanding these urbanization systems.

## **2. Understanding the Unit of Landscape Heritage as an operating resource**

All the territorial organization system underlined by the energy production line shall be understood as a *Unit of Landscape Heritage*, framed as a relatively homogeneous area that denotes a close relationship between the ecological characteristics of territory and the activities that are developed on it, in a defined period, *ante* and *post*, and with an intrinsic operating intelligibility, enabling not only its correlation but also the adoption of measures and intervention strategies<sup>13</sup>.

The operative figure of a *Unit of Landscape Heritage* allows the identification of the characterizing features of this landscape heritage, systematizing them in a structured interpretation, determined by the intrinsic logic of its construction.

As in the process underlying the definition of cultural routes, a guiding thread shall be sought in "heritage manifestations, tangible and intangible, related to its functionality"<sup>14</sup>, strengthening its identity and simultaneously the understanding of the narrative underlying the whole System, however, in a prospective logic and with an active role in boosting the territory.

## **3. Representing the Unit of Landscape Heritage**

In 1962, Ritter identified *le promeneur* as the subject of landscape, defining the pathway as a mean for landscape appropriation. The figure of the itinerary as a way of linking the resources identified in the *Unit of Landscape Heritage*, redesigning the connections between the places that define the *Carboniferous System of Douro*, gains particular relevance in characterizing this landscape; the architectural design as tool to this process of iterative interpretation between different scales, also becomes part of the solution. Not only from a planned reading of the territory, but also through the interpretation of a logic in the elevation or profile, quite closer to our understanding of landscape, as human beings.

In the proposed solution, it draws in a way to make the territorial production line intelligible, within the framework of the places of the present; projects are conceived with a minimum intervention mindset, but essential for reading this landscape, based on what J.Ibañez identified as territory acupuncture, thus seeking its systemic and significant recovery.





- 3 → In 1899 Ramalho Ortigão published *A Tradição* (*The Tradition*), noun to whose assigned a global vision of History, Country and its people, as long as of its cultural evolution, identifying the known of “Tradição” as the core of consciousness of nationality. For further reading: Alves, A.N. (2009). *Ramalho Ortigão e o culto dos monumentos nacionais no séc. XIX*. Doctoral thesis in History, specialising on Art, Heritage and Restoration, Instituto de História de Arte-Faculdade de Letras da Universidade de Lisboa, Lisboa, Portugal
- 4 → Cultural Heritage definition (UNESCO. *World Heritage Convention*, 1992) presented by ICOMOS-Portugal (Aguiar, 2007). <http://icomos.fa.utl.pt/eventos/apap2007.pdf>
- 5 → Rocha, I. (1997). *O Carvão Numa Economia Nacional. O Caso Das Minas Do Pejão*. Master thesis in Contemporary History, Universidade do Porto, Porto, Portugal, p. 383
- 6 → Article 2, *Conceito e âmbito do património cultural* of *Lei-quadro da política e do regime de protecção e valorização do património cultural* (Lei n.º 107/2001)
- 7 → Article 2 of *Convention for The Safeguarding of the Intangible Cultural Heritage* (Resolução da Assembleia da República n.º 12/2008 de 26 de Março)
- 8 → See in this respect: Rossa, W. (2012). *Sumário pormenorizado da lição Património Urbanístico: (re)fazer cidade parcela a parcela*. Aggregation test, Universidade de Coimbra, Coimbra, Portugal
- 9 → Until 1870, the concept of heritage was only used in the field of private law concerning the transfer of inherited assets, from parents to sons.
- 10 → For further reading: Domingues, A. (2014). Patrimónios Desamparados in Direcção Geral do Património Cultural, *Revista Património*, n.2, (p. 6-15). [s.l]: Imprensa Nacional-Casa da Moeda, S.A.
- 11 → In 1966, Aldo Rossi highlighted the relevance of the “idea of city”, considering that it is similar to the concept of ideal city and urban utopia: “Una parte importante dei nostri studi dovrebbe essere dedicata alla storia dell’idea di città; in altri termini alla storia della città ideali e alla storia delle utopie urbane.” Rossi (2012). *L’architettura della città* (2<sup>nd</sup> ed.). Macerata: Quodlibet
- 12 → In *Origines y Desarrollo della Ciudad Moderna*, Aymonino referred to the practical proposals of Fourier and Owens, Phalanstery and New Harmony, respectively.
- 13 → For further reading: Dias, L. T. (2011) *Património Construído Como Património Prospetivo*. Aggregation test, Faculdade de Arquitectura, Universidade do Porto, Porto, Portugal
- 14 → For further reading: Alçada, M. (2014). *Reinventar o Património. Do Latim Inventare, Invenire*, «Descobrir, Achar» in *Anuário do Património*, n. 2, (p.300-301). [s.l]: Canto Redonto-Edição e Produção, Lda.

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